Underweight or At Risk of Becoming Underweight (Infants and Children)

Definition/ cut-off value

≤10th percentile Body Mass Index (BMI)*, or ≤10th percentile weight-for-length/stature*.

∗Based on National Center for Health Statistics/Centers for Disease Control and Prevention (2000) age/sex specific growth charts.

Participant category and priority level

Category	Priority
Infants	I
Children	III

Justification

The Centers for Disease Control and Prevention (CDC) uses the cut-off of the 5th percentile to define underweight for purposes of their Pediatric Nutrition Surveillance System. However, CDC does not have a position regarding the cut-off percentile for underweight, which should be used to determine nutritional risk.

A survey of articles and texts addressing weight for length or stature cut-off percentiles reveals that: a) many children less than the 5th percentile are in need of nutritional intervention, and b) many authors also view a child at ≤10th percentile as at nutritional risk and in need of preventive nutritional intervention, or at least further evaluation. The 10th percentile is chosen as a cut-off for WIC purposes in accord with the preventive emphasis of this program.

While progress along the 10th percentile may represent normal growth for some children, it may also be an indication of inadequate caloric intake and of an associated inadequate nutrient intake.

A child suffering from chronic malnutrition can have a weight for length or stature above the 10th percentile, because linear growth has also been stunted. Weight for length or stature ≤10th percentile is most useful for identifying acute undernutrition in which length or stature is less affected.

Mortality rates and morbidity from infections and diarrheal diseases are increased in undernourished children. Child participation in WIC has been associated with improved growth in both weight and height.

Clarifications/ Guidelines

Because NCHS/CDC age/sex specific growth charts are used to record the weight and length/stature measurements of healthy, full-term infants, this risk code MAY NOT be used for premature infants. However, because many premature infants show "catch-up growth" by one year of age, this risk code may be used for infants born premature beginning at their one-year certification.

If the measurements cannot be plotted on a specific percentile line, but it is obvious that the measurements would plot below the 10th percentile line, the CA should use professional judgment when assigning this risk code. The CA should provide documentation to explain why the risk code was assigned.

References

1. FNIC: Update of Analysis of Literature Regarding Cut-off Percentiles for Low Weight for Length in Infants; February 5, 1991.

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3. Hamill, PVV, Drizard, TA, et al. Physical Growth: National Center for Health Statistics Percentiles. Am J Clin. Nutr,1979.

4. Journal of the American Dietetics Association: Nutrition Services: A Literature Review; April 1989; Supplement vol. 89(4); s-13, s-19.

5. Kempe, Silver, O'Brien and Fuginiti: Current Pediatric Diagnosis and Treatment; Lange; 9th edition; 1987.

6. Kuczmarski RJ, Ogden CL, Grummer-Strawn LM, et al. CDC growth charts: United States. Advance data from vital and health statistics; no. 314. Hyattsville, Maryland: National Center for Health Statistics. 2000.

7. Pipes PL, Trahms CM. Nutrition: Growth and Development. In Pipes PL and Trahms CM, ed. Nutrition in Infancy and Childhood 6th edition; WCB/McGraw-Hill; 1997.

8. Wright JA, Ashenburg CA, Whitaker RC. Comparison of methods to categorize undernutrition in children. *J Pediatr.* 1994;124: 944-946.